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# DATA MATION

FOR MANAGERS OF INFORMATION TECHNOLOGY WORLDWIDE

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# DATAMATION

FOR MANAGERS OF INFORMATION TECHNOLOGY WORLDWIDE

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Increased demand for integration, means the sky's the limit for Apple's James O'Gara.

## Apple Breaks Through!

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**BY BOB FRANCIS AND JOHN McMULLEN** More and more, IS professionals want to connect Apple computers to corporate IS systems. Apple is meeting this demand via third-party arrangements, and some users have undertaken their own initiatives.

Cover photography by Ed Braverman

## SPECIAL REPORT

## Which Network Operating System Is Right for You?

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**BY LEILA DAVIS** If your organization has embarked on developing or buying client/server applications, think twice about jumping on just any networking bandwagon. Your OS/2 plans should be considered. So should your network suppliers.

**This is the first of five reports on networking, part of DATAMATION's ongoing Systems & Strategies for the '90s program. The remaining parts will cover network types, servers, databases and the views of experts.**



## INSIGHTS ON DISTRIBUTED COMPUTING

Client/server applications allow you to execute back-end applications, instead of just transferring a whole file from the server to the workstation as is the usual case now.

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In order to have maximum flexibility, you really need end-to-end information sharing.

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It has to do with an environment that has the openness of communications, the openness of application portability, having the cooperative network computing environment and so forth. That's what openness really means.

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# DATAMATION

FOR MANAGERS OF INFORMATION TECHNOLOGY WORLDWIDE

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This is the first of five reports on networking, part of DATAMATION's on-going Systems & Strategies for the '90s Program. The remaining parts will cover network types, servers, databases and experts.



# Which Network Operating System Is Right for You?

If your organization has embarked on developing or buying client/server applications, think twice about jumping on just any networking bandwagon. Your OS/2 plans should be considered. So should your network suppliers.

BY LEILA DAVIS

**R**elief is in sight for users of local area networks. And so, unfortunately, is confusion. New versions of operating systems to run those networks promise to solve a number of problems that previous generation products failed to correct. But differences between new network software offerings of Novell Inc. and Microsoft Corp., the two leaders in the field, may force users to make a difficult choice—one with serious

ramifications for their distributed-computing strategies.

Do users stay with Novell, the recognized king in providing software needed to link together personal computers? Or do they switch to Microsoft, whose claim to fame has been to provide the operating systems and applications for those PCs?

In large measure, the choice boils down to technology. Do users buy Novell's new network operating system (OS), NetWare 386, which will allow them to run all of the software applications built on the company's previous products? Or do they invest in the 2.0 version of Microsoft's LAN Manager, which some experts believe is better suited to the sorts of client/server applications that will be developed in tomorrow's distributed-computing environments? If users choose NetWare 386, which began shipping last August, they'll be paying \$7,995—regardless of how many users are on a LAN where it's installed. If they want LAN Manager 2.0, expected to hit the streets about now, the price tag will be in the same range.

In a smaller yet significant way, the choice centers on power. While Provo, Utah-headquartered Novell enjoys a much larger installed base of customers for its networking products than its rival, the company does not carry anywhere near the clout that Redmond, Wash.-based Microsoft carries with other computer manufacturers that resell LAN Manager technology. Having companies such as Compaq Computer Corp., Digital Equipment Corp., Groupe Bull, Hewlett-Packard Co., IBM and others remarketing its product is a significant Microsoft as-



**MICROSOFT BACKER MAYER** pilots System One's reservation system on a LAN manager SQL server network.

Photograph by Alvin Upitis

set—especially if users are inclined in the future to buy their networking solutions from their chief computer suppliers.

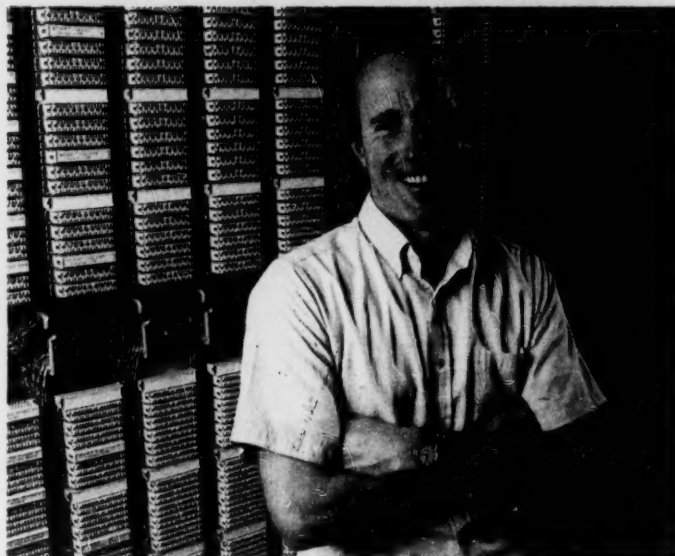
To date, users have been content to buy LANs from both network specialists, such as Novell, and computer makers, such as IBM—and they may be happy to do so in the future. Among information systems executives polled recently by DATAMATION and Cowen & Co., 31% have Novell networks today and 37% plan to have installed its NetWare products by the end of 1991. At the same time, however, users of IBM LANs intend to increase their dependency on Big Blue, whose network OS supplier is Microsoft. IBM's LAN share climbs from 27 to 34% during the two-year period.

### This LAN vs. That LAN

What's more significant to IS executives, perhaps, is the degree to which their organizations will become networked, the technology that will enable such linkage and the respective roles of Novell and Microsoft in the process. Although less than half (47%) the user organizations responding to DATAMATION and Cowen & Co.'s first 1990 survey indicate they have networks in place today, fully 61% of them expect to have LANs in place by the end of 1992. What's unclear, however, is the nature of the applications such users will be running on those networks and, hence, whether one LAN technology is better than another.

"Networking is essentially in a transition stage," says David Passmore, a partner in the Network Strategies practice of Ernst & Young in Fairfax, Va. "Fifty percent or more of the people running NetWare are considering making the transition to the new generation, NetWare 386. And all those old Microsoft network users are considering moving to the next generation of LAN Manager."

Here's what experts, suppliers and users have to say about the choice confronting IS executives as



**NOVELL FAN BABBITT** intends to install Netware 386 at all 25 Gates plants.

they make this important transition—one that requires them to devise or refine their networking strategies for the early 1990s.

Without a doubt, NetWare 386 and LAN Manager 2.0 represent an improvement over their predecessors. Specifically, they attempt to solve problems in the following areas:

- Naming
- Addressing
- Administration
- Directory services

As simple as naming and addressing appear to be—every resource on a network has a name, whose address corresponds to that particular network—it's a source of frustration for end users. They don't like having to log onto every other network, system or peripheral to which they desire access—the dreaded log on syndrome, if you will. What they have wanted is a single log-on, a name that gives them instant access to any resource on the network that they have permission to use.

Global naming, as this is known, will be a feature of Novell's and Microsoft's new network operating

Photograph by Frank Warren/Black Star

## How NetWare Stacks Up Against LAN Manager

Experts believe NetWare 386 needs to be improved quickly to hold off LAN Manager 2.0.

### Classic Strengths

#### NetWare 286:

Performance  
Fault Tolerance  
Security  
Hardware Support

Novell  
NetWare

### Recent Enhancements

#### NetWare 386:

Performance  
Application Programming  
Interfaces (API)

### Expected Enhancements

#### NetWare 386 v.3.1, etc.

Network Naming  
Remote Management  
Application Programming  
Interfaces (API)

#### LAN Manager 1.0:

Memory Protection  
Application Programming  
Interfaces (API)

Microsoft  
LAN Manager

#### LAN Manager 2.0

Fault Tolerance  
Security  
Improved Performance

Source: Ernst & Young

systems—in the future. Right now, it's offered by one of their competitors, Banyan Systems Inc., on its VINES networking family. The Westborough, Mass.-based LAN provider markets this feature, which it calls StreetTalk, as enabling end users to regard their given network as one system—regardless of how many resources (systems, peripherals and even subnetworks) there are or where they are located. In the parlance of networking, this feature is known as a single-system image.

Both Novell and Microsoft have changed their operating systems to create a single log-on, but neither have gone as far as Banyan to offer hierarchical naming. The hierarchical approach allows an administrator (the IS professional charged with managing a

network) to group hosts or servers on the network into categories by using group name endings. They, in turn, can form directories that end users can access to find lists of resources grouped by type

(so-called "yellow pages") and/or name ("white pages").

Both NetWare 386 and LAN Manager 2.0 will feature domain naming. This allows a network administrator to create groups of end users with the same access rights to resources. Placing them in such domains enables an administrator to make a network change (such as access to a new resource) as a group. Before this feature, such a change would require the administrator to update each end user's account individually—a time-consuming task if ever there was one. In addition to making network management a little easier for the administrator, it will also automatically allow users access to each permitted resource under the same log-on.

**I**t's not all gloom and doom for Novell, but it can't hang onto 50% of the market.

"It is not yet a directory service, but it will be in the future," David Thacher, senior product manager of Microsoft's network business unit, says of the domain-naming feature. "We will take the domains, group them, put them into master domains, catalog them, make them available with a utility," he promises.

#### Where Client/Server Applications Fit

Features like naming and directory services, though important in making network-buying decisions today, may soon take a back seat to another consideration in choosing LANs: How suitable is a particular network operating system to software applications specifically designed to run in client/server environments? The answer, many believe, may tip the networking battle between Novell and Microsoft in the latter's favor.

"It's not all gloom and doom for Novell, but it can't hang onto 50% of the market," says Ernst & Young's password. "Novell clearly was superior, but that's no longer the case."

In the eyes of experts, what may give LAN Manager 2.0 the edge—beyond the fact that it's being resold in several different flavors by several major computer companies—is its relationship to OS/2, the Microsoft/IBM-developed operating system on which many new client/server applications are being created. LAN Manager runs as a guest under OS/2—not alongside it as does NetWare.

The distinction is important for at least two reasons—both of which add up to the fact that it may be easier to write applications to run with LAN Manager than with NetWare. One, OS/2 (and by extension LAN Manager) is expected to attract hundreds of independent software developers to write shrink-wrap applications for it. Two, OS/2 provides the foundation for another important product in the client/server mix—SQL Server, software that acts as a database engine in driving information management on server systems.

"Client/server applications allow you to execute back-end applications, instead of just transferring a whole file from the server to the workstation as is the usual case now," says Passmore. "With LAN Manager, all the applications are based on OS/2, which is emerging as a standard for networking and server duty," he continues. "With Novell's single-vendor operating system, you have to create a Network Loadable Module [NLM] written specifically to run in the NetWare environment."

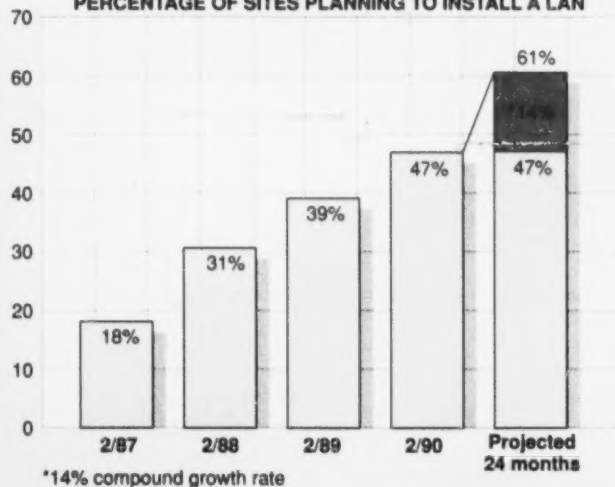
Not everybody views having to work with a separate network operating system as much of a limitation. In fact, users of NetWare praise the module feature as a major advance in networking—one they think will appeal to software developers working on client/server applications, including internal development teams. Using this technology, all network services, server-based applications and server utilities are built as modules that can be loaded or unloaded at any time without bringing down a server—or the entire network for that matter.

"We need those NLMs," states Chris Babbitt unequivocally. Babbitt is a systems engineer for Gates

#### Moving to Networks

Most users will have a local area network installed within a couple of years.

**PERCENTAGE OF SITES PLANNING TO INSTALL A LAN**



Source: DATAMATION/Cowen & Co.

**M**uch of the functionality of IBM's LAN Server 1.2 comes from OS/2.

Rubber Co., a Denver-based maker of rubber belts and hoses. Babbitt and his team of developers plan to create new cooperative-processing applications with Network Loadable Modules as Gates pursues its strategy of distributing more computer power throughout its 25 U.S. plants. Gates will soon upgrade three plants from NetWare 286 networks to NetWare 386 LANs. Eventually it will install NetWare 386 networks at all locations.

For Gates, the naming, addressing and administrative issues that plague other users have not been a problem. "We've gotten around that internally," says Babbitt. "We use the Novell SNA gateway to provide access to the IBM 8100 minicomputer at each plant and to the IBM 3084 mainframe at headquar-

ters. The host takes care of the addressing problem, and the user can hot-key from one resource to another." Hot-keying is the ability to toggle from one application or resource to another through the use of a preprogrammed command using just one keystroke.

In the next three years, Gates plans to dump some machines and add others to its networks. It's going to phase out its 8100 systems, replacing them with LAN-to-mainframe communications at all plants. And it's going to add hardware and software running UNIX (for machine control applications) to the network—confident that Novell's network technology will be able to support UNIX when the need arises. (A version of NetWare 386 called Portable NetWare can and is being ported to other networking environments. Most licenses of Portable NetWare are, in fact, porting to UNIX.)

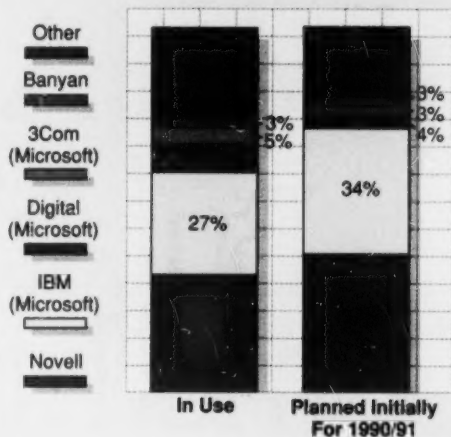
"The test for Novell will be the performance of the NLMS," agrees Hal Chapel, president of Vanguard Business Solutions Inc.

His Sausalito, Calif., company builds custom client/server applications for large users, and it distributes Novell's products. He views the modules as competitive weapons—built by Novell into its networking technology to keep up with new trends like client/server applications.

Despite Chapel's relationship with Novell, he's bullish on LAN Manager's prospects. "Novell does allow you to support standard OS/2 applications," he explains. "But LAN Manager runs under OS/2 as an application, whereas NetWare is the main operating system. Therefore, LAN Manager gives you better protection—it won't crash the operating system if it goes down, but if an application crashes on NetWare, it brings down

## Becoming Network Superstars

Novell and Microsoft's OEMs are gaining ground in local area network installations at user sites.



Source: DATAMATION/Cowan & Co.

the whole server."

At System One Corp. in Houston, a subsidiary of Texas Air Inc., interest in Microsoft's OS/2 and SQL Server drove the company's decision to choose LAN Manager. "LAN Manager seemed like the logical choice, so we could stay with a complete Microsoft package," says Bruce Mayer, manager of application development at the System One technical center in Minneapolis. His company is currently using 3Com Corp.'s version of an earlier version of LAN Manager.

SQL Server was needed to support the massive airline information databases required for the applications operating on the company's LAN Manager network. Ten unattended personal computers run various air process applications automatically, communicating with each other and two servers. One server runs SQL Server software and the other one runs systems software.

### Network Travel

A typical application in System One's network is the fare assurance process. Travel agents call into the network, enter a set of travel criteria for a customer and receive information on the best possible fares that meet those criteria. Agents link into the network through a cluster of host mainframes at a technical center in Miami.

"The network has allowed us to create a minicomputer environment with PCs, so we don't have a single point of failure as with a mini. The PCs cost less, and if one PC goes down, we only lose the one piece of the client process," says Mayer.

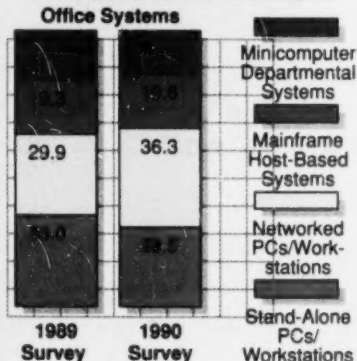
It's not unusual to find a user of LAN Manager whose opinion of the network operating system is colored by the value that another company, usually a big computer maker, has added to it. "Some of the things that make Novell better than LAN Manager disappear when I look at 3Com," Vanguard's Chapel says. In particular, he praises the graphical network management features of 3Com's LAN Manager offering.

The strength of Microsoft's following among so-called original equipment manufacturers, computer

## Shaping Tomorrow's Office

Users are increasingly turning to networked PCs and workstations.

### PRINCIPAL HARDWARE ORIENTATION OF USERS' NEWEST OFFICE SYSTEM APPLICATIONS



Source: DATAMATION/Cowan & Co.

**Users don't like to log onto every other network, system or peripheral to which they desire access.**

### Plugging Into the Network

If you want more information about these networking suppliers and products, please respond by using DATAMATION's reader service card.

| SUPPLIER  | PRODUCT         | IN-QUIRY |
|-----------|-----------------|----------|
| Banyan    | VINES           | 110      |
| IBM       | LAN Server 1.2  | 111      |
| Microsoft | LAN Manager 2.0 | 112      |
|           | LAN Manager 1.0 | 113      |
| Novell    | NetWare 386     | 114      |
|           | NetWare 286     | 115      |

companies that resell its software, can't be underestimated. Not only are these OEMs big, their versions of LAN Manager often meet the needs of users operating in heterogeneous computing environments—places where there's more than one brand of computer. Digital, for example, offers a version of LAN Manager that allows users of computers based on its VMS operating system to network with systems running UNIX.

To add muscle to its OEM strategy, Microsoft has agreed to make LAN Manager one product—giving every version of it, even IBM's network, the same application-programming interfaces [APIs]. Such single-product status will allow software on any licensee's version of LAN Manager to run on any other version—something that applications can't do at the moment.

IBM has its own new generation product called LAN Server 1.2 on the way, which runs under IBM's OS/2 Extended Edition operating system. Although IBM stresses that LAN Manager and LAN Server 1.2

will become one product at the core, it doesn't mind boasting about the networking features of LAN Server 1.2. Besides making different resources on a network appear as one part of one system, IBM is offering Ethernet support without the need for a bridge, additional APIs in network management, enhanced audit trails and an increase in the number of permitted open files from 255 to 8,000.

"Additional functions come from the close synergy of the network with OS/2, which has a high-performance file system and a disk file access scheme that is much faster," says Patricia Linnon, a consulting product administrator for IBM. "Our LAN Server runs under OS/2, and much of the functionality of the network comes from OS/2."

### Late Dates with Several OEMs

For its part, Novell was late in courting OEMs as resellers of its products. Most of its \$422 million in annual revenues has been built on the backs of network specialists (value-added resellers and systems integrators) and distributors. But its OEM camp is growing. It now includes Data General Corp., NCR Corp., Prime Computer Inc. and Wang Laboratories Inc. And most computer makers and software developers, while perhaps not reselling Novell's products, support them technically or in a service capacity.

Users of NetWare are evolving in Novell's eyes from work group applications to true network computing. NetWare 386 is intended to address the network-computing market with its greater demand for distributed computing. NetWare 286 will continue to serve the needs of the work group market, whose primary interest is still resource sharing.

As a result of these shifts, industry analysts suggest that users take a careful look at the new generation of operating systems on two levels: how they bridge immediate functionality gaps and how they will serve the particular users' application needs over the next three to five years. □

## Netting Gains From NetWare

**M**ost users of Novell Inc.'s NetWare 286 operating system are probably weighing whether they need to invest in NetWare 386 technology. Here are the thoughts of one IS professional, Dave Smith, whose organization is pondering the upgrade question.

Smith is a programmer for the city of Corvallis, Ore. His department oversees two Novell NetWare 286 networks, one at City Hall and the other within the Department of Public Works. The 40-workstation City Hall network is about to implement a third-party geographic information system that will require a dedicated database server, while Public Works has a maintenance management system on its 30-workstation network. Aside from these two major applications, however, the networks are used primarily for simple resource sharing.

If there are no surprises in performance degradation once the geographic information system is up on the NetWare 286, the city probably could stay with the network. But Smith figures that administrative issues created by the additional application

may move him up a class.

"[With NetWare 286 technology], there is the system administrator and the end user and no in between. Everything has to go through the system administrator, which becomes more and more of a headache as the network grows," he complains. NetWare 386 technology, he says, offers an additional management layer—the work group manager—so a user can offload some of the administrative tasks created by network growth.

Smith also is impressed with how much more flexible NetWare 386 appears to be versus its predecessor. Changing a card, for example, on a NetWare 286 network requires a user to unplug the network, add the card and hope it starts up again. NetWare 386 technology enables a user to change cards without bringing the network down. "With the 386, you just power down the server, add the card and bring up the server again," Smith explains. "You can also disable one leg of the network for troubleshooting if you need to, instead of bringing down the whole thing."

# A Mixed Year for Suppliers in Europe

Siemens-Nixdorf and Digital Equipment Corp. achieved some market share gains last year at IBM's expense, but Big Blue is still the No. 1 information technology supplier in Europe.

BY BORIS SEDACCA

**T**he stakes are rising in the battle for IS dominance in Europe. A wave of consolidations and acquisitions is thinning the ranks of the major European suppliers. At the same time, U.S. and Japanese vendors are expanding their marketing and manufacturing resources there in anticipation of a unified Western European market and new opportunities in Eastern Europe.

The 25 companies with the largest information systems (IS) sales in Europe generated revenues of \$66.9 billion in 1989, up less than 2% over the previous year. The flat growth—a remarkable departure from the torrid growth seen in recent years—is primarily due to lackluster sales by the major European vendors: International Computers Ltd. (ICL), Groupe Bull SA, Nixdorf Computer AG, NV Philips GL, Olivetti and Siemens AG.

Like their counterparts in the United States, the dominant European suppliers are struggling to adapt to the new realities of IS in the 1990s: the growing popularity of desktop systems based on standard operating systems. "The demand for IS is there, and it will increase in the 1990s," maintains Vittorio Cassoni, Olivetti's managing director. "But it's a demand for a different type of solution than in the past."

In terms of sales in Europe, Groupe Bull had the best year among the European suppliers. Its European sales grew 8.4% to Fr26 billion (\$4.1 billion). Sales in Europe actually declined for Philips and Nixdorf, the latter reporting its results for the last time as an independent company, pending the final completion of its acquisition by Siemens later this year.

The weak performance of the European IS leaders in their home market is even more striking when compared with

the strong results posted by several of the major U.S. vendors there. Compaq Computer Corp.'s revenues grew 63% in Europe to \$1.18 billion, and Apple Computer Inc.'s European sales rose 33% to \$1.24 billion.

IBM's sales growth in Europe in 1989 was not as strong as in previous years. The company's revenues there rose less than 4% to \$21.3 billion. Europe accounted for 35% of IBM's total IS revenues in 1989 and some 70% of its total earnings. (IBM's U.S. earnings were reduced by the massive \$2.3 billion charge against earnings that Big Blue took last December to slim down its U.S. operations.)

Although Europe has been a bright spot for IBM sales since the mid-1980s, the company has been losing market share there to its largest rivals, Digital Equipment Corp. and Siemens. But IBM is still a formidable foe. With £4.2 billion (\$6.8 billion) in total revenues, its U.K. subsidiary alone is one of Europe's leading IS companies. IBM has also been active in the capital markets, raising a number of bond issues.

In 1989, IBM made it clear that it wants very much to be seen as a European company. In October, IBM chairman John Akers said the company was anxious to collaborate on the \$4 billion Joint European Semiconductor Silicon (JESSI) project. JESSI has attracted wide corporate and govern-

ment backing. JESSI's U.S. equivalent, Sematech, had in the past rejected membership applications from European semiconductor manufacturers, so there has been some reluctance by JESSI members to admit U.S. members. But the threat from Japan may motivate the inclusion of U.S. companies.

| 1989 RANK | 1988 RANK | COMPANY                      | COUNTRY        |
|-----------|-----------|------------------------------|----------------|
| 1         | 1         | IBM                          | United States  |
| 2         | 2         | Siemens                      | West Germany   |
| 3         | 3         | Digital                      | United States  |
| 4         | 4         | Olivetti                     | Italy          |
| 5         | 5         | Groupe Bull                  | France         |
| 6         | 6         | Hewlett-Packard              | United States  |
| 7         | 7         | Unisys                       | United States  |
| 8         | 8         | Nixdorf                      | West Germany   |
| 9         | 10        | STC                          | United Kingdom |
| 10        | 9         | NV Philips                   | Netherlands    |
| 11        | 11        | NCR                          | United States  |
| 12        | 12        | Alcatel                      | France         |
| 13        | 17        | Apple                        | United States  |
| 14        | 14        | Hitachi                      | France         |
| 15        | 25        | Compaq                       | United States  |
| 16        | 16        | Casio                        | Japan          |
| 17        | 21        | Cap Gemini                   | France         |
| 18        | —         | Siemens                      | Germany        |
| 19        | 19        | Wang                         | United States  |
| 20        | —         | International Computers Ltd. | United Kingdom |
| 21        | —         | Amdahl                       | United States  |
| 22        | —         | IBM Corp.                    | United States  |
| 23        | —         | Finsiel                      | Italy          |
| 24        | 22        | Philips                      | Netherlands    |
| 25        | —         | Commodore                    | United States  |

In 1989 Compaq expanded its role as one of Europe's major PC suppliers. According to Dataquest/Intelligent Electronics, a Paris-based research institute, Compaq captured 10.2% of the market for personal computers in the seven main European countries, which account for 80% of the total European market. The United Kingdom is Compaq's largest market outside the United States; next in line are France and West Germany.

Compaq employs 550 people at its Erskine plant in Renfrewshire, Scotland, near Glasgow, which the company says will be producing 70% of the machines it sells outside North America. Eckhard Pfeiffer, president of Compaq's non-American operations, says this would be made possible by a £30 million (\$49 million) expansion of the Erskine plant due to be completed later this year.

Compaq also took over a former Wang Laboratories Inc. plant in Stirling, Scotland, in September 1989, seeking to create a base for international service and repair work. Initially, the plant will employ 125 people, although the company

plans to take on an additional 1,000 by 1991.

Headquartered in Lowell, Mass., Wang had as troubled a year in Europe as it did in the States. Its European sales dropped 1.2% to \$836 million.

#### Digital, Apple Thrive

Digital also has bullish plans for Europe. In August 1989, the company announced that it would invest £20 million (\$33 million) in a new plant in Warrington, Cheshire, U.K., creating 500 new jobs. The development consists of a 200,000-sq.-ft. extension to its existing premises in Birchwood Science Park. Regional support manager John Horsley says that by the year 2000, Digital will employ 1,000 sales and services staff members there.

Apple's strong performance in 1989 has carried over into 1990, with its recent quarterly results boosted by European sales. In February of this year, the company appointed Soran Olsson president of its European division. Olsson replaces Michael Spindler, who was promoted to

chief operating officer of Apple in the United States. Olsson had directed Apple's Swedish subsidiary since 1984. More recently, Apple promoted its U.K. managing director, Phil Chaveau, to vice president and general manager of the company's European operations. Chaveau's responsibilities will span Austria, Belgium, Denmark, Holland, Ireland, Norway, Spain, Sweden, Switzerland and Eastern Europe.

#### CDC Eyes the U.S.S.R.

Other U.S. companies turned in mixed performances and are actually reducing their facilities in Europe. Control Data Corp. (CDC) sold its stake in Colorado Springs-based Laser Magnetic Storage International Co. to NV Philips of the Netherlands. CDC was among the first to seek opportunities in the East Bloc. In December, CDC announced it was hoping to sell six large mainframe systems to the Soviet Union. The Cyber 962 computers are substantially more powerful than any on the list of the Coordinating Committee for Multilateral Export Controls (Co-

## The Top 25 Suppliers in Europe

The top five remain stable, while six new companies rank among the biggest vendors.

| 1989 EUR.<br>IS REV. | % CHG.<br>FROM<br>1988 | TOTAL IS<br>89 REV. | % CHG.<br>FROM<br>1988 | EUR.<br>% OF<br>TOTAL IS | % CHG.<br>FROM<br>1988 | U.S.<br>% OF<br>TOTAL IS | % CHG.<br>FROM<br>1988 | NET<br>INCOME | 1989<br>EMPLOYEES |
|----------------------|------------------------|---------------------|------------------------|--------------------------|------------------------|--------------------------|------------------------|---------------|-------------------|
| 21,281.8             | 3.7%                   | 60,805.0            | 10.5%                  | 35.0%                    | 1.0%                   | 43.0%                    | -1.0%                  | 3,758.0       | 383,220           |
| 4,915.9              | 11.2%                  | 12,936.7            | 5.3%                   | 38.0%                    | 2.0%                   | 46.0%                    | -2.0%                  | 875.8         | 125,900           |
| 4,514.4              | 3.7%                   | 5,573.3             | 2.7%                   | 31.0%                    | 0.0%                   | 38.0%                    | 1.0%                   | 147.3         | 53,300            |
| 4,073.2              | 5.3%                   | 6,465.4             | 22.1%                  | 63.0%                    | -10.0%                 | 30.0%                    | 9.0%                   | -41.8         | 47,332            |
| 3,885.0              | 23.8%                  | 7,886.0             | 23.8%                  | 37.0%                    | 0.0%                   | 41.0%                    | 0.0%                   | 82.0          | 82,300            |
| 2,723.1              | 2.8%                   | 9,390.0             | 2.8%                   | 29.0%                    | 0.0%                   | 51.0%                    | -3.0%                  | -639.0        | 82,300            |
| 2,167.6              | 5.2%                   | 2,643.4             | 9.0%                   | 82.0%                    | -3.0%                  | 10.0%                    | 3.0%                   | 288.2         | 36,393            |
| 1,702.1              | -3.1%                  | 5,319.0             | -0.1%                  | 32.0%                    | -1.0%                  | 42.0%                    | 0.0%                   | 412.0         | 56,000            |
| 1,235.6              | 32.7%                  | 5,372.3             | 21.2%                  | 23.0%                    | 2.0%                   | 64.0%                    | -2.0%                  | 438.4         | 14,517            |
| 1,179.2              | 63.1%                  | 2,876.1             | 39.2%                  | 41.0%                    | 6.0%                   | 54.0%                    | -7.0%                  | 333.3         | 9,500             |
| 893.8                | 11.6%                  | 1,103.4             | 13.0%                  | 81.0%                    | -1.0%                  | 19.0%                    | 1.0%                   | N/A           | 13,500            |
| 836.1                | -1.2%                  | 2,697.0             | -7.6%                  | 31.0%                    | 2.0%                   | 51.0%                    | -6.0%                  | -511.0        | 225,000           |
| 714.3                | 27.9%                  | 2,101.0             | 16.6%                  | 34.0%                    | 3.0%                   | 58.0%                    | -5.0%                  | 153.0         | 8,200             |
| 636.0                | 17.8%                  | 662.5               | 21.5%                  | 96.0%                    | -3.0%                  | 4.0%                     | 3.0%                   | 12.5          | 5,459             |
| 597.9                | -3.6%                  | 868.5               | -6.4%                  | 69.0%                    | 2.0%                   | 24.0%                    | -2.0%                  | 8.3           | 3200              |

Source: DATAMATION  
All currency figures are in millions of dollars.

## INTERNATIONAL

### EUROPEAN 25

Com). The machines were ordered by the Soviet Research and Development Institute of Power Engineering for running safety analysis software from the Vienna-based International Atomic Energy Agency.

Unisys Corp. also had a difficult year in Europe, with sales rising less than 3% to \$2.7 billion. However, the company got off to a strong start in 1990, winning a \$47 million mainframe upgrade order from the German air traffic control system.

#### Groupe Bull, Siemens Square Off

As the 1990s begin, the indigenous European computer industry finds itself in the middle of a large-scale restructuring.

Groupe Bull's recent acquisition of Zenith Data Systems Corp. of Santa Clara has put it in contention with Siemens for first place in the European computer market. Yet the company reported a 1989 loss of Fr267 million (\$42 million), the first time in three years it has fallen into the red. The slippage was due to a combination of printed circuit board production difficulties, the dollar's unexpected strength and heavy restructuring costs.

In its aim to behave more like a single European company, Groupe Bull will be split into four units—Bull SA France, Bull International SA, Bull HN and Zenith Data Systems—all reporting to Compagnie des Machines Bull.

#### □ LACKLUSTER SALES BY MAJOR EUROPEAN VENDORS RESULTED IN FLAT 1989 REVENUES.

In April, Germany's Federal Cartel Office gave the go-ahead for Siemens to acquire 51% percent of Nixdorf. The new company will be called Siemens-Nixdorf Informationssysteme AG. Prior to the acquisition, Nixdorf had run into trouble due to what analysts say was a combination of overconfidence and lack of foresight to capitalize on emerging open standards. The company had spent heavily but unsuccessfully in fast-growing sectors where intense price competition was putting great pressure on margins. In February, Nixdorf announced it would lay off a quarter of the work force at its Bray plant in Ireland and was negotiating to sell the factory.

Many analysts and industry experts believe the Siemens-Nixdorf merger signals the start of a wave of mergers and

acquisitions that will drastically change Europe's computing landscape.

In January, Siemens put Hoskyns, a leading U.K. computing services company acquired during the General Electric Co./Siemens takeover of the Plessey Co. PLC, on the market, but no buyers have come forward so far. A series of GEC/Siemens joint ventures has now been abandoned.

#### Ups and Downs at Olivetti

Italian computer giant Olivetti did not have a very happy 1989. Net income fell 43% to L202.8 billion (\$147.3 million). Its European sales rose 8.2% to L6.2 trillion (\$4.5 billion). The squeeze on earnings at Olivetti is primarily due to its fierce competition with IBM and Compaq in the PC market.

1989 also saw an end to the six-year "global alliance" between Olivetti and AT&T. In July, AT&T liquidated its 22.35% stake in Olivetti for \$850 million.

There were some positive developments for Olivetti last year, however. In July, the company announced that it had won one of the single largest contracts for banking automation systems ever awarded. The deal, for L500 billion (\$365 million) worth of networked minis and PCs, came from the Dutch Rabobank

## Top 25 European Companies

Groupe Bull catapults to the top, as Siemens and Olivetti experience modest gains.

| RANK | COMPANY         | COUNTRY        | 1989 IS REV. | 1988 IS REV. | % CHANGE |
|------|-----------------|----------------|--------------|--------------|----------|
| 1    | Groupe Bull     | France         | 6,465.4      | 5,296.7      | 22.1%    |
| 3    | Olivetti        | Italy          | 5,573.3      | 5,427.9      | 2.7%     |
| 5    | Nixdorf         | West Germany   | 2,792.6      | 3,044.9      | -8.3%    |
| 7    | Memorex         | Netherlands    | 2,056.6      | 2,078.5      | -1.1%    |
| 9    | Nokia           | Finland        | 1,191.9      | 1,165.1      | 2.3%     |
| 11   | Mannesmann      | West Germany   | 819.1        | 779.0        | 5.2%     |
| 13   | British Telecom | United Kingdom | 692.5        | N/A          | N/A      |
| 15   | Racal           | United Kingdom | 573.9        | 554.1        | 3.6%     |
| 17   | SD-Scicon       | United Kingdom | 431.5        | 366.4        | 17.8%    |
| 19   | Sema Group      | United Kingdom | 378.6        | 375.1        | 0.9%     |
| 21   | Logica          | United Kingdom | 314.0        | 269.9        | 14.0%    |
| 23   | GSI             | France         | 277.1        | 262.8        | 5.0%     |
| 25   | Dowty Group     | United Kingdom | 216.6        | N/A          | N/A      |

Source: DATAMATION  
All revenue figures are in millions.

group, based in Utrecht, the Netherlands. In October, Olivetti launched its new "Computing Platforms" based on the Intel 486 and 860 processors.

A possible benefactor to Olivetti is Nokia Data AB, part of the Finnish Nokia industrial conglomerate, which brought in a top Olivetti man, Vittorio Levi, to take over as president.

A long-standing member of the Olivetti board, Levi joined Nokia Data in March of this year and will act as senior executive vice president for operations until December when Kalle Isokallio, who was appointed deputy to the chief executive of the Nokia group in January, relinquishes his post of president.

#### Shake-up at Philips

The poor performance of Philips' computer business played a significant role in the management shake-up at the Dutch company in May of this year. President and chairman Cor van der Klugt is out, along with G. Lorenz, who was head of the computer division and a member of the Philips board of management. The shake-up was announced following a steep and unexpected decline in the company's first-quarter profits. The poor financial results came only a few weeks after van der Klugt had predicted that 1990 would be better than 1989. Reports

## INTERNATIONAL EUROPEAN 25

that Philips is trying to buy a majority stake in Olivetti were denied by the Italian computer maker. Olivetti representatives say their company is discussing cooperative ventures with several electronics and computer companies, including Philips, but that "there are no talks about a shareholders' agreement."

Results from the U.K.'s information technology companies are mixed. ICL, the U.K.'s leading computer manufacturer, still appears to be the tail that wags the dog, having turned in a 13% increase in 1989 profits of £145.7 million (\$238.3 million) on revenues of £1.6 billion (\$2.6 billion) for its London-based parent, STC PLC.

But STC chairman Arthur Walsh is said to be looking for a partner for ICL to help spread research costs. When the 1989 figures were announced, Edmund Fitzgerald, chairman of Northern Telecom Ltd. in Mississauga, Ontario, turned up to deny reports that his company intended to sell its shares. Northern Telecom holds just over 27% of STC.

## IBM's Seven Major Sources of Revenue in Europe

West Germany remains IBM's biggest market in Europe.

| COUNTRY        | 1989<br>IS REV.<br>(\$ MIL.) | LOCAL<br>IS REV. | % CHG.<br>FROM 1988 | TOTAL<br>REV. | %<br>CHANGE | NET<br>INCOME | %<br>CHANGE |
|----------------|------------------------------|------------------|---------------------|---------------|-------------|---------------|-------------|
| West Germany   | 4,461.2                      | DM8,387          | 14.2                | DM12,391      | 9.0         | 755           | 17.1        |
| France         | 3,634.7                      | Fr22,190         | 15.2                | Fr41,336      | 9.3         | 1,063         | 10.8        |
| United Kingdom | 3,451.1                      | £2110            | 21.0                | £4,192        | 8.0         | 295           | -9.8        |
| Italy          | 3,154.8                      | L.4,360,000      | 10.3                | L.7,400,000   | 12.8        | N/A           | N/A         |
| Spain          | 1,302.4                      | Pta154,203       | 16.7                | Pta211,784    | 13.2        | 26236         | 22.6        |
| Netherlands    | 1,085.6                      | Gld3,303         | 23.8                | Gld4,837      | 8.8         | 239           | 17.0        |
| Sweden         | 844.2                        | Skr5,442         | 11.2                | Skr10,152     | 12.5        | 459           | 15.6        |

N/A= Not available

Revenue figures are in millions; all exchange rates are OECD average rates for 1989.

Source: IBM Europe, Paris

Amstrad PLC suffered a poor year, with sales of its PCs dropping more than 7% to £438 million (\$716 million). Amstrad's move in 1989 into professional PCs based on Intel 286 and 386 processors was dogged by quality problems, culminating in the recall of 7,000 PCs. The company launched two new Japanese-manufactured laptop PCs this March.

Unlike their hardware-oriented counterparts, European software and services companies posted very strong results in 1989. Finsiel SpA, the Italian software and services firm, boosted sales by 28% to L908.7 billion (\$662.5 million).

Cap Gemini Sogeti saw improved margins in 1989; sales grew 21.2% to Fr7.04 billion (\$1.1 billion), with a net profit of Fr525 million (\$82.3 million).

The company made no large acquisitions last year but added a number of small U.S. and European computer services companies to its portfolio. In January it issued a Fr1.5 billion (\$235.1 million) convertible bond and is regarded as a buyer of some of the leading information services companies on the market. □

Boris Sedacca is a freelance technology journalist based in London.

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